US Army Corps
of Engineers®

North Atlantic Division

Water Control Management Annual Report

January 2001

North Atlantic Division
Annual Water Control Management Report
Fiscal Year 2000

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1 Introduction

1.1 Background and Organization

Water Control Management is the responsibility of the Water Resources Management Team, Engineering and Construction Division, Directorate of Engineering and Technical Services. Division and District water control staffing is summarized in Table 1-1. In general, one FTE is dedicated to water control at the Division Office.

1.2 Purpose of Report

This report was prepared in conformance with the requirements of ER 1110-2-240, dated 8 October 1982. This report is the nineteenth such Annual Division Water Control Management Report for the North Atlantic Division. This report summarizes the significant water control activities for the Division during the past fiscal year and outlines anticipated future activities.

1.3 Scope

This report provides a general Division-wide summary of North Atlantic Division Water Control Management Activities and Accomplishments for Fiscal Year 2000 and current and future water management programs. Additional detail on all topics is provided in Appendices A- E for the Baltimore, Norfolk, New York, Philadelphia, and New England Districts respectively.

1.4 Division and District Responsibilities

The Districts are responsible for the operation, maintenance and regulation of all Corps projects within their respective Civil Works Boundaries in accordance with governing Engineering Regulations and related guidance. As major river basins in the North Atlantic Division are totally within assigned District Civil Works boundaries, no inter-district coordination is required for the regulation of projects. Districts prepare and implement water control plans and manuals, and regulate Corps projects to meet all project purposes. The Division Office is responsible for the review and approval of water control plans and manuals and associated activities. Detailed responsibilities are provided in the North Atlantic Division Water Control Center Guidance Memorandum dated 28 September 1994.

2 Hydrometorologic Summary

2.1 Baltimore District

2.1.1 Flood Control

District flood control projects provided benefits during five minor to moderate flood events in FY 00. Four of the five events were concentrated in the upper portion of the Susquehanna River Basin above Waverly, NY

18-19 February 2000. Runoff from 2 to 3 inches of rainfall, combined with a small amount of snowmelt runoff, produced some significant rises in the upper North Branch Potomac River Basin. The most intense runoff occurred upstream from Jennings Randolph Lake and Savage River Dam. Previously vacated water quality storage at these two projects was successfully utilized to prevent downstream flooding, reducing stages by about 6 to 7 feet at Luke and Cumberland, MD. Total benefits attributable to these two reservoirs and District levee projects are estimated to be about $2.5 million.

27-29 February 2000. Runoff from ¾ to 1 inch of rainfall, combined with 2.5 to 3 inches of snowmelt runoff, produced minor to moderate flooding throughout much of the upper Susquehanna River Basin. Peak stages along the Susquehanna River in NY were about 5 feet above flood stage. In PA, peak stages on the Susquehanna River upstream from Wilkes-Barre, PA were almost two feet above flood stage. Since the most significant runoff was concentrated downstream from District flood control reservoirs, reservoir operations were able to provide only minor peak stage reductions of about 1 to 2 feet. The outlet gates at Whitney Point, East Sidney, and Stillwater Dams were closed and about one-third of the available flood control storage was utilized during this event. The District's local flood protection projects played a more significant role during this flood event, accounting for more than 85 percent of the almost $40 million in damages prevented.

4-6 April 2000. Runoff from 2 to 4 inches of rain produced minor flooding along portions of the upper Susquehanna River basin in NY and in the Tioga River basin in PA. Peak stages along the upper Susquehanna River were generally 2 to 3 feet above flood stage. The outlet gates at Whitney Point and East Sidney Dams in NY were closed, accounting for peak stage reductions of less than 1 foot. District reservoir and local protection projects are estimated to have prevented about $10.1 million in damages during this event.

12-13 May and 23-25 May 2000. The upper Susquehanna River basin in NY experienced minor, nuisance-type flooding two more times in May 2000 from two storms that each dumped about 2 to 4 inches of rain over the area. Observed flood peaks were generally no higher than one foot above flood stage. Peak stage reductions due to reservoir operations at East Sidney Lake and Whitney Point Lake were also less than one foot during each of these events. The outlet gates at Whitney Point Lake were closed during both events. At East Sidney Lake, gates needed to be closed only during the

second of the two events. District reservoir and local protection projects are estimated to have prevented about $7.5 million in damages during these events.

2.1.2 Low Flow Regulation

The impacts of the drought that existed throughout the District during much of FY 99, were greatly alleviated by several heavy rainfall events near the end of FY 99 and beginning of FY 00. Only portions of the upper Juniata River and North Branch Potomac River basins were still considered to have been impacted by moderate drought conditions early in FY 00.

Low flow regulation was generally not an issue at District projects during FY 00, except at Raystown Lake. Due to rather dry, upstream conditions and a relatively high minimum outflow requirement, Raystown's lake level was drawn down about 2 to 3 feet below normal during much of the early part of FY 00. No problems were reported. The lake refilled during a period of high inflows in mid-February and remained full through the remainder of FY 00.

Water Control staff was actively involved in Drought Coordination Meetings with SRBC and State resource agencies early in FY 00 to discuss Corps reservoir conditions, recommend changes in existing State drought declarations, and to evaluate the potential for severe drought conditions to return.

2.1.3 Water Supply

There were no requests for releases or withdrawals from the contracted water supply storage in Cowanesque Lake, Curwensville Lake, or Jennings Randolph Lake during FY 00.

Only 80 percent of the contracted water supply storage in Jennings Randolph Lake was available at the start of FY 00. Water supply releases that were made during the last quarter of FY 99, at the request of ICPRB, accounted for this reduction in storage. Higher inflows to the lake in early FY 00 enabled the water supply storage to be refilled by mid-December 1999.

2.1.4 Recreation

Baltimore District recreation areas logged 14.0 million visitor hours during FY 00. Raystown Lake accounted for about 55 percent of the total, followed by F.J. Sayers Lake and Tioga-Hammond lakes with about 10 percent. Almond Lake, Alvin R. Bush Dam, Cowanesque Lake, and Whitney Point lake each accounted for about 5 percent of the total, and each of the remaining projects accounted for 1 to 2 percent of the total.

White water releases were made during six weekends at Jennings Randolph Lake Norfolk District

2.1.5 Flood Control

During Water Year (WY) 2000, there was no major flooding in the James River Basin as the basin continued to experience a near record drought through the first part of the year. During March and April 2000, small flood releases were made from the Gathright Dam and Lake Moomaw Project but no damages were prevented. Four other flood events, which did not impact the James River Basin, did result in a total of $7,706,000 in flood damages prevented by Norfolk District constructed projects as detailed below.

The first event in mid-October 1999 (Hurricane Irene) produced $1,427,000 in flood damages prevented by the Local Flood Control project on Canal #2 in Virginia Beach, Virginia. Rainfall totals, in the vicinity of the project, for this storm ranged from over 6 inches at Oceana Naval Air Station to over 7 inches at Norfolk Airport in slightly more than 24 hours. Two small tidal events in January and May 2000 produced $117,000 and $72,000 respectively in tidal flood damages prevented by the hurricane protection project in Norfolk, Virginia. The last event was a result of locally heavy rainfall in the vicinity of Newport News, Virginia. Rainfall amounts in the area were in the range of 4 to 7 inches in slightly less than 24 hours. This fourth event in late July 2000 resulted in $6,090,000 in flood damages prevented by the Section 205 Flood Control project on New Market Creek in Newport News, Virginia.

2.1.6 Low Flow Regulation

Low flow augmentation releases are made from Gathright Dam during periods of low flows for the improvement of downstream water quality. Monthly downstream flow requirements vary on a seasonal basis from a minimum of 158 c.f.s. in December and January to a maximum of 283 c.f.s. in July. When inflows to the reservoir are less than required to provide the low flow augmentation releases, conservation storage is utilized from Lake Moomaw to provide the required release and the reservoir pool elevation declines. On average, the project experiences conditions that draw down the reservoir pool from June through January.

At the start of WY 2000, the reservoir at the Gathright Dam and Lake Moomaw project was 24.8 feet below the maximum conservation pool. The reservoir continued to drop to elevation 1554.6 ft., N.G.V.D. in late November 1999 before returning to maximum conservation pool in early March 2000. The reservoir remained near the maximum conservation pool through early June 2000. Subsequently a steady decline in the pool occurred due to low flow augmentation releases through July. During August and September the pool was generally steady at approximately elevation 1578 ft, N.G.V.D. due to above average rainfall at the project. The pool elevation on 30 September 2000 was 1578.6 ft., N.G.V.D. and slowly declining. At this level, approximately 86.1% of the low flow augmentation storage remained available. This level was over 21 feet higher

than the lake level at the same time the previous year and almost 9 feet higher than the average level recorded at the project on 30 September.

No requests were received in WY 2000 to provide additional low-flow augmentation above the flows specified in the Regulation Manual. At the beginning of the WY, low flow augmentation releases were being reduced due to a request from the Commonwealth of Virginia. The continuing drought conditions in Virginia resulted in a second request to further reduce the low flow augmentation releases, to attempt to preserve the remaining conservation storage.

2.2 New York District

The New York District experienced two notable storms, one in July and one in August, 20000. Fourteen named tropical storms/hurricanes formed during the hurricane season (June through November), however, none affected the New York District.

26-27 July 2000. Total rainfall of about 5 inches resulted in flooding of parts of coastal Monmouth County, New Jersey on 26 July 2000.

12-15 August 2000. An upper level low-pressure system combined with a surface level low front resulted in a storm that produced approximately 12 inches of rain over parts of northwestern New Jersey over a three day period. Over 14 inches of rain fell in an 8-hour period over some areas, this is in excess of the 500-year and standard project precipitation. The resulting river and lake flash flooding caused extensive damage in the area. The effected area is upstream of any New York District flood control projects and did not benefit from district projects. However, projects downstream of the effected area benefited from New York District constructed local protection projects.

2.2.1 Flood Control

2.3 New England District

2.3.1 Flood Control

New England experienced a diverse weather pattern during FY 00. The dry conditions persisting in New England during FY99 were gradually replaced by wet conditions beginning with rainfall from tropical storm Floyd in September 1999 and continuing with near to slightly above normal rainfall during FY00. Most New England watersheds experienced near average monthly rainfall throughout the year with late spring and summer months experiencing greater than average amounts. The months of June and July were notably wet with total rainfall in some southern New England watersheds measuring up to two or three times average. Snowfall during the winter months was below normal throughout New England region. By early March southern watersheds were depleted of snow, and by late March northern watersheds were also depleted. Above normal rainfall occurred during March and April; however, with little to no snowpack contributing to runoff, there was no significant flooding. Despite a relatively

wet spring and summer, no significant flooding occurred in the New England District during FY00. During the hurricane season (June through November), 14 named tropical storms/hurricanes formed in the Caribbean, Gulf of Mexico, and Atlantic Oceans, with none affecting New England. Several non-tropical storms impacted the New England coastline during FY00 producing high winds and higher than normal tide levels.

Reservoir Regulation: During the fiscal year there were only minor occasions requiring reservoir regulation. Although runoff resulted in flood control storage at some reservoirs downstream runoff was not significant enough to cause river levels to approach or exceed flood stage, therefore, no "damages prevented" are attributable to New England District dam or local protection projects. Although the summer months were wetter than normal the timing of the rainstorms were such that the ground had the opportunity to dry between individual storms, thereby reducing the flood potential.

Regulation of Hurricane Barriers: During FY 00 the Stamford Hurricane barrier was operated on ten occasions with total damages prevented of $375,000. The New Bedford Hurricane barrier was operated on nine occasions with total damages prevented of $305,000.

Flood control damages prevented during FY00, including reservoirs, hurricane barriers and local protection projects totaled $680,000, all of which were attributed to Corps hurricane barriers.

2.3.2 Low Flow Regulation

The dry conditions persisting in New England during FY99 were gradually replaced by wet conditions beginning with rainfall from tropical storm Floyd in September 1999 and continued with near to slightly above normal rainfall during FY00. Most New England watersheds experienced near average monthly rainfall throughout the year with late spring and summer months experiencing greater than average amounts. The months of June and July were notably wet with total rainfall in some southern New England watersheds measuring up to two or three times average. During FY00 there were no months experiencing precipitation deficits justifying drought contingency measures at any NAE reservoirs.

2.3.3 Water Supply

Three New England District reservoirs have allocated water supply storage, Littleville Lake, Colebrook River Lake, and East Brimfield Lake. During the fiscal year contractual water supply releases were made only from East Brimfield Lake.

2.3.4 Recreation

Releases for whitewater and canoeing events were made at ten New England District lakes during the fiscal year, including Ball Mountain Lake, Townshend Lake, Otter

Brook Lake, Birch Hill Dam, Tully Lake, Knightville Dam, Littleville Lake, Blackwater Dam, East Brimfield Lake and Mansvield Hollow Lake.

2.4 Philadelphia District

2.4.1 Flood Control

One storm large enough to accrue flood damage benefits occurred during FY 00. A heavy rainstorm occurred over the Schulkill River basin on 21 and 22 March 2000. Runoff captured by Blue Marsh Lake prevented an estimated $6,000 in damages.

2.4.2 Low Flow Regulation

The Delaware River Basin Commission (DRBC) which contracts for long term water storage in Beltzville and Blue Marsh Lakes made no requests for releases in FY 00.

2.4.3 Recreation

Over one million visits were made to Philadelphia District projects during FY 00. The district in cooperation with other federal and local agencies, organized canoeing clubs and commercial whitewater organization, scheduled five whitewater events on the Lehigh River below F.E. Walter Reservoir in June, September and October. Additional releases for whitewater or float trips are made during the period of mid-April to mid-October if hydrologic conditions permit.

3 Activities and Accomplishments

3.1 General Summary

The most significant accomplishments in FY 2000 was in the area of flood control, North Atlantic Division projects prevented approximately $33 million in flood damages, as shown on Table 3-1. Table 3-2 shows cumulative and current year damages prevented by each project in the division.

3.2 Water Control Data System

The North Atlantic Division will be the first Major Subordinate Command (MSC) to field the new Corps Water Management System (CWMS). Initial installation is scheduled for July 2001. Baltimore District is currently one of four nationwide test sites for the software. All districts are expanding their data dissemination capabilities on the world wide web.

The current water control data system is operational and working well. All districts collect, analyze, and disseminate data from their respective projects.

3.2.1 Baltimore District

Significant FY 00 activities regarding the WCDS include: Improvements for displaying water control data and information via the world wide web; hardware and software upgrades; X-terminals have been replaced with high end personal computers running Hummingbird Exceed Software; and participation in the CWMS Modernization.

Data Management and Analysis System for Lakes, estuaries, and Rivers (DASLER) software was installed in May 2000 to enable the district to better manage, analyze, and display project water quality data.

During FY 00, WCQS staff actively participated in the ongoing WCDS modernization efforts. Baltimore District continues its efforts as one of four initial test sites for the modernized software.

3.2.2 Norfolk District

The district plans to make minor additions and/or replacements to their WCDS in FY 01 as well as partially replace data collection platforms.

3.2.3 Philadelphia District

The district will proceed to integrate geographic information system (GIS) capability into the WCDS for visualization, improved flood damage assessment and reporting. Efforts to make water control manuals available online in hypertext format will also be undertaken.

3.2.4 New England District

The New England District replaced its primary water control workstation, a Sun Sparc20, with a Sun Ultra60 in FY 00. Hummingbird Exceed software was installed on personal computers to eliminate the need for X-terminals. Arcview software was upgraded.

The district plans to expand their current real time data feed from the National Weather Service and further develop GIS applications and products.

3.3 Status of Water Control Plans and Manuals

The status of Water Control Manuals for all NAD Corps reservoirs, and reservoirs subject to Corps of Engineers prescribed regulations per ER 1110-2-241 is summarized on Table 3-3.

Drought Contingency Plans, also referred to as Drought Management Plans, have been completed for all NAD Corps reservoir projects. Dam Failure Inundation Mapping and Flood Emergency Plans have also been completed for all NAD Corps reservoir projects in prior years.

"Acquisition of Lands Downstream from Spillways for Hydrologic Safety Purposes" Studies per ER 1110-2-1451 have been completed for all Corps reservoirs in NAD.

3.4 Deviations from Water Control Plans

Deviations from approved water control plans are shown on Table 3-4.

3.5 Constraints on Water Control Plans

3.5.1 General

Constraints on individual project Water Control Plans are encountered at some NAD projects. These constraints are usually relatively minor, and usually entail limitations to the magnitude of reservoir releases, gate openings, or time to close gates. There are several instances where the planned bankfull capacity reservoir release causes some nuisance or minor flooding to downstream encroachments. This type of problem is presently resolved by limiting reservoir releases to below bankfull capacity where necessary, during regulation of most flood events. During future major flood events, the full bankfull release will be made when necessary with the acceptance of some minor damages caused by the necessary flood water releases. Perceived constraints are being

studied and eliminated where possible. Individual projects where constraints are evident are noted in the individual District Appendices.

3.5.2 Baltimore District

3.5.2.1 Cowanesque Lake

Final repairs to the selective withdrawal outlet works, used to adjust the quality of releases from the dam, were completed in June 2000. The project had been unable to meet water temperature objectives for the downstream warm water fishery since May 1996. Completion of the repair work will also help to eliminate most of the reported odor and turbidity problems in the tailwater, caused by anoxic releases from the bottom of the lake. The restrictions that had been placed on the use of the selective withdrawal system since 1996 had no impact on flood control operations.

3.5.2.2 Jennings Randolph Lake

Early operating experience at this project revealed the need for some restrictions regarding the operation of the selective withdrawal system. Certain combinations of intake ports and quality control (QC) gate settings created noticeable vibrations in the tower. Operation of the selective withdrawal system is restricted to eliminate these vibrations at certain combinations of intake port and water quality control gate settings.

Slug flow problem occurs for large releases under low-head conditions, this should not be a problem under normal reservoir operations. Non-emergency releases of up to 9,000 cfs will be permitted, provided downstream conditions can be monitored closely by project personnel.

The impact of gas supersaturation on the tailwater trout population is a concern that also needs to be addressed whenever outflows exceed 2,500 cfs. The establishment of a trout rearing facility in the stilling basin has resulted in a thriving trout population both inside and outside of the facility's net pens. Increased fish mortality can be expected as the degree of gas supersaturation increases with increasing outflows.

3.5.2.3 Tioga-Hammond Lakes

The Crooked Creek outlet from Hammond Lake is closed when the pool is forecast to reach elevation 1089. All subsequent releases are made through the Hammond outlet works in the connecting channel.

3.5.2.4 Foster Joseph Sayers Dam

Regulation constraints are in place due to increased year-round utilization of low lying flood plains downstream of the project.

3.5.3 Norfolk District

3.5.3.1 Gathright Dam and Lake Moomaw

The capacity of the water quality outlet works is less than rated.

3.5.4 Philadelphia District

3.5.4.1 Blue Marsh Lake

There are some release restraints due to down stream nuisance flooding.

3.5.4.2 F.E. Walter Dam

The bypass system is inoperable due to the threat of cavitation and partial collapse of an access ladder. The inability to use this system results only in minor problems related to temperature.

3.5.5 New England District

3.5.5.1 Hodges Village Dam

Maximum pool level is restricted to 50 percent of capacity due to chronic seepage problems. Remedial construction is scheduled for completion in FY 2000.

3.5.5.2 West Hill Dam

Due to seepage during the March 1998 flood, the maximum pool is restricted to 15 feet during minor to moderate floods. Geotechnical surveillance is undertaken when the pool approaches or exceeds 12 feet. Remedial construction is expected during FY 2001.

3.6 New Water Control Projects

There are no new water control projects in the North Atlantic Division.

3.7 Cooperative Hydrologic Programs

No significant changes were made in the FY 2000 Cooperative Stream Gauging Program with the U.S. Geological Survey (USGS) and National Weather Service (NWS). The program has been successful to date. NWS AFOS and DOMSAT costs are being funded by HQUSACE. Table 3-5 summarizes the cooperative programs with the USGS and NWS.

4 Current and Future Programs

4.1 General Summary

All current programs will be continued including procuring new or replacement WCDS equipment and software as outlined in the North Atlantic Division Water Control Data Systems Master Plan or on an as needed basis. Reservoir sedimentation studies and revision and updating of water control manuals will continue. On-going interagency programs such as the Coordination of Water Data Collection Activities and the Cooperative Stream Gauging Program with the United States Geological Survey will be continued on an annual basis. Training of Water Control Management personnel is continual on an annual basis as courses are made available, and new personnel are hired to fill vacancies. The annual North Atlantic Division Water Control Managers Meeting was held in June 2000, and the annual meeting will be continued in the spring of each year.

4.2 Water Control Data System

Baltimore District will continue as a deployment test site for the CWMS software suite. Test Version 3 is scheduled for deployment in March 2001. The Baltimore District water control/quality staff will invest significant time and effort to test the software. Existing models for the North Branch Potomac River and Bald Eagle Creek will be enhanced to take advantage of the new capabilities of Test Version 3. Baltimore District plans to add an additional Sun Workstation to support greater than expected processing needs of CWMS.

All districts will continue to implement Geographic Information System (GIS) modeling to better represent, interpret and analyze data. Existing X-terminals are being eliminated and replaced with X-windows emulation software on existing or new personal computers.

The North Atlantic Division will be the first MSC to field the modernized CWMS software suite. Installation is scheduled to begin in July 2001. Significant time and effort is envisioned to prepare for deployment.

Table 1-1

North Atlantic Division
Water Control Staffing

OFFICE SYMBOL	POSITION	NAME	TELEPHONE
NORTH ATLANTIC DIVISION			
CENAD-ET-ET	Hydraulic Engineer	Andrew Petallides	(718) 491-8750
CENAD-ET-ET	Hydraulic Engineer	Alfred K. Tai	(718) 491-8748
CENAD-ET-ET	Hydraulic Engineer	Ralph LaMoglia	(718) 491-8746
BALTIMORE DISTRICT			
CENAB-EN-GW	Supv. Hydraulic Engr.	Richard Olin	(410) 962-6769
CENAB-EN-GW	Hydraulic Engineer	Stan A. Brua	(410) 962-4894
CENAB-EN-GW	Hydraulic Engineer	Barry N. Flickinger	(410) 962-6777
CENAB-EN-GW	Hydraulic Engineer	James W. Haines	(410) 962-6768
CENAB-EN-GW	Hydraulic Engineer	Donald B. Lambrechts	(410) 962-6770
CENAB-EN-GW	Hydraulic Engineer	Julia A. Fritz	(410) 962-4895
CENAB-EN-GW	Computer Specialist	Thomas S. Ressin	(410) 962-6814
CENAB-EN-GW	Hydraulic Engineer	Debra Strickland	(410) 962-6772
CENAB-EN-GW	Hydrologic Technician	Michael D. Barlock	(410) 962-5124
CENAB-EN-GW	Hydrologist	Kenneth Kulp	(410) 962-6775
CENAB-EN-GW	Secretary	Maureen Jordan	(410) 962-4893
NORFOLK DISTRICT			
CENA0-TS-EN	Supv. Hydraulic Engr.	Larry E. Holland	(757) 441-7774
CENA0-TS-EN	Hydraulic Engineer	Mark Hudgins	(757) 441-7107
CENA0-TS-EN	Hydraulic Engineer	Owen R. Reece, Jr.	(757) 441-7772
CENA0-TS-EN	Hydraulic Engineer	Robin M. Williams	(757) 441-7104
CENA0-TS-EN	Engineering Technician	Ellen Moore	(757) 441-7771
PHILADELPHIA DISTRICT			
CENAP-EN-H	Supv. Hydraulic Engr.	George A. Sauls	(215) 656-6678
CENAP-EN-H	Hydraulic Engineer	Francis P. Cook	(215) 656-6680
CENAP-EN-H	Hydraulic Engineer	Christine Tingle	(215) 656-6679
CENAP-EN-H	Ecologist	Greg Wacik	(215) 656-6561
CENAP-EN-H	Hydrologic Engr. Tech.	Yvette Boggs	(215) 656-6685
NEW ENGLAND DISTRICT			
CENAE-EP-GW	Hydraulic Engineer	Paul Marinelli	(978) 318-8630
CENAE-EP-GW	Hydraulic Engineer	Greg Hanlon	(978) 318-8632
CENAE-EP-GW	Hydraulic Engineer	David Schafer	(978) 318-8163
CENAE-EP-GW	Hydraulic Engineer	Carmen Suarez	(978) 318-8629
CENAE-EP-GW	Hydraulic Engineer	Steven Simmer	(978) 318-8524

* Kenneth Lee (NAB) is on a two year TDY assignment outside of water management.

Table 3-1

North Atlantic Division

Summary of Flood Damages Prevented
Fiscal Year 2000

FLOOD DAMAGES PREVENTED BY WATER CONTROL PROJECTS
(In thousands of dollars)

STATE	NAB	NAE	NAN	NAO	NAP	TOTAL
CT		375				375
DC	0					0
DE						0
MA		305				305
MD	1,230					1,230
ME		0				0
NH						0
NJ			2,720			2,720
NY	4,233		13,042			17,275
PA	2,938				6	2,944
RI		0				0
VA	0			0		0
VT		0	6,828			6,828
WV	1,002					1,002
TOTAL	9,403	680	22,590	0	6	32,679

Table 3-2

North Atlantic Division
Damages Prevented by Project
Fiscal Year 2000

DISTRICT	PROJECT	FY 2000 ($1,000)	CUMULATIVE INCLUDING FY 2000 ($1,000)	
NAB	EAST SIDNEY LAKE, NY	2,685	150,033	
NAB	WHITNEY POINT LAKE, NY	1,872	513,361	
NAB	ARKPORT DAM, NY	19	44,099	
NAB	ALMOND LAKE, NY	63	120,324	
NAB	TIOGA-HAMMOND LAKES, PA	982	278,294	
NAB	COWANESQUE LAKE, PA	208	157,135	
NAB	CURWENSVILLE LAKE, PA	1	118,171	
NAB	ALVIN R. BUSH DAM, PA	0	162,756	
NAB	FOSTER JOSEPH SAYERS LAKE, PA	0	109,542	
NAB	RAYSTOWN LAKE, PA	0	162,597	
NAB	STILLWATER LAKE, PA	1,339	77,755	
NAB	ALESWORTH CREEK LAKE, PA	3	4,990	
NAB	INDIAN ROCK, PA	0	----------	
NAB	JENNINGS RANDOLPH LAKE, MD & WV	1,499	354,642	
NAB	SAVAGE RIVER DAM, MD	732	Not Available	
NAE	UNION VILLAGE DAM	0	30,388	
NAE	NORTH HARTLAND LAKE	0	80,463	
NAE	NORTH SPRINGFIELD LAKE	0	84,437	
NAE	BALL MOUNTAIN LAKE	0	97,023	
NAE	TOWNSHEND LAKE	0	62,559	
NAE	SURRY MOUNTAIN LAKE	0	60,869	
NAE	OTTER BROOK LAKE	0	27,555	
NAE	BIRCH HILL DAM	0	58,724	
NAE	TULLY LAKE	0	21,764	
NAE	BARRE FALLS DAM	0	23,321	
NAE	CONANT BROOK DAM	0	2,296	
NAE	KNIGHTVILLE DAM	0	143,462	
NAE	LITTLEVILLE LAKE	0	54,124	
NAE	COLEBROOK RIVER LAKE	0	37,156	
NAE	MAD RIVER DAM	0	2,709	(2)
NAE	SUCKER BROOK DAM	0	145	(2)
NAE	EAST BRANCH DAM	0	10,512	(2)
NAE	HALL MEADOW BROOK DAM	0	9,596	(2)
NAE	THOMASTON DAM	0	242,362	
NAE	NORTHFIELD BROOK LAKE	0	22,420	
NAE	BLACK ROCK LAKE	0	65,060	
NAE	HANCOCK BROOK LAKE	0	29,894	
NAE	HOP BROOK LAKE	0	31,076	
NAE	FRANKLIN FALLS DAM	0	69,135	
NAE	BLACKWATER DAM	0	19,852	
NAE	EDWARD MACDOWELL LAKE	0	7,846	
NAE	HOPKINTON-EVERETT LAKES	0	63,301	
NAE	BUFFUMVILLE LAKE	0	54,633	

Table 3-2

North Atlantic Division
Damages Prevented by Project
Fiscal Year 2000

NAE	HODGES VILLAGE DAM	0	52,083	
NAE	EAST BRIMFIELD LAKE	0	45,007	
NAE	WESTVILLE LAKE	0	22,959	
NAE	WEST THOMPSON LAKE	0	18,409	
NAE	MANSFIELD HOLLOW LAKE	0	43,209	
NAE	WEST HILL DAM	0	30,064	
NAE	NEW BEDFORD HURRICANE BARRIER	305	17,211	
NAE	STAMFORD HURRICANE BARRIER	375	25,039	
NAN	EAST BARRE DAM (SECT 7)	592	2,510	(4)
NAN	WATERBURY DAM (SECT 7)	4,580	8,858	(4)
NAN	WRIGHTSVILLE DAM (SECT 7)	1,656	3,970	(4)
NAO	GATHRIGHT DAM & LAKE MOOMAW, VA	0	193,434	
NAP	F.E. WALTER RESERVOIR, PA	0	103,163	
NAP	BELTZVILLE LAKE, PA	0	10,031	
NAP	BLUE MARSH LAKE, PA	6	35,192	
NAP	PROMPTON RESERVOIR, PA	0	8,512	
NAP	JADWIN RESERVOIR, PA	0	5,577	

NOTES:
(1) Flood damages prevented by the Indian Rock Dam, York, PA are not included. The economic data requied to compute these estimates in not avilable at this time.
(2) Owned & Maintained by CT Dept. of Environmental Protection. Operated for flood control by the New England District
(3) The table does not include flood damages prevented by Stevenson Dam which is owned by the Commonwealth of Pennsylvania.
(4) Cumulative flood damages prevented since FY 1996

North Atlantic Division
Water Control Manuals

Project	Stream	Owner	District	Last Submission	Approval Date	Approved By	Revision Schedule
Almond Lake & Arkport Reservoir	Canacadea Cr./Canisteo R.	NAB	CE	Sep 1987	Dec 1987	NAD	FY 01
East Sidney Lake	Ouleout Cr.	NAB	CE	Aug 1996	Oct 1996	NAD	FY 06
Whitney Point Reservoir	Otselic R.	NAB	CE	Sep 1996	Dec 1996	NAD	FY 06
Alvin R. Bush Dam & Kettle Creek Lake	Kettle Cr.	NAB	CE	Nov 1997	Feb 1998	NAD	FY 08
Cowanesque Lake	Cowanesque R.	NAB	CE	Sep 1990	Nov 1990	NAD	FY 03
Curwensville Lake	West Branch Susquehanna R.	NAB	CE	Dec 1997	Feb 1998	NAD	FY 08
F.J. Sayers Dam & Reservoir	Bald Eagle Cr.	NAB	CE	Sep 1996	Oct 1996	NAD	FY 06
G.B. Stevenson Dam	First Fork Sinneahoning Cr	NAB	PA	Jul 1999	Jan 2000	NAD	FY 00
Raystown Lake	Raystown Branch Juniata R.	NAB	CE	Sep 1989	Dec 1989	NAD	FY 02
Stillwater & Aylesworth Creeks Resevoirs	Lackawanna R / Aylesworth Cr.	NAB	CE	Nov 1985	Dec 1985	NAD	FY 01
Tioga-Hammond Lake	Tioga R / Crooked Cr	NAB	CE	Sep 1988	Oct 1988	NAD	FY 02
York - Indian Rock	South Branch Codurus Cr.	NAB	CE	May 1987	May 1987	NAD	FY 01
Jennings Randolph Lake	North Branch Potomac R.	NAB	CE	Dec 1996	Jul 1997	NAD	FY 07
Savage River	Savage R.	NAB	MD	Sep 1997	Apr 1999	NAD	FY 09
Master Manual	Upper Susquehanna R.	NAB		Dec 1984	Jan 1985	NAD	FY 02
Master Manual	Lower Susquehanna R.	NAB		Dec 1984	Jan 1985	NAD	FY 03
Master Manual	North Branch Potomac R.	NAB		Sep 1986	Oct 1986	NAD	FY 02
Gathright Dam & Lake Moomaw	Jackson R.	NAO	CE	Jan 1985	Jan 1985	NAD	FY 02
Waterbury Dam & Reservoir	Little R.	NAN	VT	Oct 1970	Nov 1970	OCE	FY 01

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General Edgar Jadwin Dam & Reservoir	Dyberry Ck.	NAP	CE	Oct 1997	Dec 1997	NAD	FY 07
Prompton Dam & Reservoir	West Branch Lackawaxen R.	NAP	CE	Sep 1997	Dec 1997	NAD	FY 07
Francis E. Walter Reservoir	Lehigh R.	NAP	CE	Oct 1994	Dec 1994	NAD	FY 05
Beltzville Dam & Reservoir	Pohopoco Cr,	NAP	CE	Jun 1996	Aug 1996	NAD	FY 06
Blue Marsh Dam & Reservoir	Tulpehocken Cr.	NAP	CE	Nov 1996	Jan 1997	NAD	FY 06
Master Manual	Conneticut River Basein	NAE		Jan 1984	Jan 1984	NED	FY 03
Union Village Dam	Ompompansoosuc R.	NAE	CE	Apr 1994	Apr 1994	NED	-
North Hartland Lake	Ottauquechee R.	NAE	CE	Dec 1985	Dec 1985	NED	FY 03
North Springfield Lake	Black R.	NAE	CE	Apr 99	Sep 99	NAD	FY 09
Ball Mountain Lake	West R.	NAE	CE	Sep 1973	Sep 1973	NED	FY 02
Townshend Lake	West R.	NAE	CE	Sep 1973	Sep 1973	NED	FY 02
Surrey Mountain Lake	Ashuelot R.	NAE	CE	Jan 1972	Jan 1972	NED	FY 02
Otter Brook Lake	Otter Bk.	NAE	CE	Jan 1972	Jan 1972	NED	FY 02
Birch Hill Dam	Miller R.	NAE	CE	Jun 2000	Sep 2000	NAD	FY 10
Tully Lake	East Branch Tully R.	NAE	CE	Jun 2000	Sep 2000	NAD	FY 10
Barre Falls Dam	Ware River	NAE	CE	Feb 1979	Feb 1979	NED	FY 01
Conant Brook Dam	Conant Bk.	NAE	CE	Feb 1979	Feb 1979	NED	FY 01
Knightville Dam	Westfield R.	NAE	CE	Jan 1978	Jan 1978	NED	FY 01
Littleville Lake	Westfield R.	NAE	CE	Jan 1978	Jan 1978	NED	FY 01
Colebrook River Lake	West Branch Farmington R.	NAE	CE	Mar 1990	Mar 1990	NED	FY 03
Mad River Dam	Mad River	NAE	CE	Mar 1990	Mar 1990	NED	FY 03
Sucker Brook Dam	Sucker Bk.	NAE	CE	Mar 1990	Mar 1990	NED	FY 03

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Project	Stream	Owner	District	Last Submission	Approval Date	Approved By	Revision Schedule
Master Manual	Merrimack River Basin	NAE		May 1999	Sep 1999	NAD	FY 09
Franklin Falls Dam	Pemigewaset R.	NAE	CE	May 1999	Sep 1999	NAD	FY 09
Blackwater Dam	Blackwater R.	NAE	CE	May 1999	Sep 1999	NAD	FY 09
Edward MacDowell Dam	Nubanusil Bk.	NAE	CE	May 1999	Sep 1999	NAD	FY 09
Hopkinton-Everett Lakes	Contoockook R.	NAE	CE	May 1999	Sep 1999	NAD	FY 09
Master Manual	Thames River Basin	NAE		Jul 1980	Jul 1980	NED	FY 03
Mansfield Hollow Lake	Nachaug R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 03
Buffumville Lake	Little R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 03
Hodges Village Dam	French R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 03
East Brimfield Lake	Quinebaug R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 03
Westville Lake	Quinebaug R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 03
West Thompson Lake	Quinebaug R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 03
Master Manual	Blackstone River Basin	NAE		Jul 1980	Jul 1980	NED	FY 02
West Hill Dam	West R.	NAE	CE	Jul 1980	Jul 1980	NED	FY 02
Master Manual	Housatonic River Basin	NAE		Oct 1976	Oct 1976	NED	FY 02
Hall Meadow Brook	Hall Meadow Brook	NAE	CE	Oct 1976	Oct 1976	NED	FY 02
East Branch Dam	East Branch Naugatuck R.	NAE	CE	Oct 1976	Oct 1976	NED	FY 02
Thomaston Dam	Naugatuck R.	NAE	CE	Oct 1976	Oct 1976	NED	FY 02
Black Rock Lake	Branch Bk.	NAE	CE	Oct 1976	Oct 1976	NED	FY 02
Northfield Brook Lake	Northfield Bk.	NAE	CE	Oct 1976	Oct 1976	NED	FY 02
Hancock Brook Lake	Hancock Bk.	NAE	CE	Oct 1976	Oct 1976	NED	FY 02
Hop Brook Lake	Hop Bk.	NAE	CE	Oct 1976	Oct 1976	NED	FY 02

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Project	Stream	Owner	District	Last Submission	Approval Date	Approved By	Revision Schedule
New Bedford Hurricane Barrier	N/A	NAE	CE	Aug 1983	Aug 1983	NED	FY03
Stamford - Fairhaven Hurricane Barrier	N/A	NAE	CT	Sep 1998	Oct 99	NAD	FY 08

Table 3-4

North Atlantic Division

Water Control Deviations
Fiscal Year 2000

Date	Project	District	Description	Major/Minor	Time Period
Mar-00	Whitney Point Lake, NY	Baltimore	Refill lake from winter to summer pool one month earlier than normal to evaluate impacts to fish spawning.	Minor	1-15 April 2000
Sep-00	Gathright Dam	Norfolk	Scheduled releases were reduced by 25% at the request of the Virginia Dept of Environmental Quality to maximize benefits to all basin stakeholders.	Minor	28 Sept 1999 to 18 Nov 1999
Oct-00	Gathright Dam	Norfolk	Scheduled releases were further reduced at the request of the Virginia Dept of Environmental Quality to enable the lake to remain above the minimum conservation pool level of 1554.	Minor	November 1999 to Spring 2000
FY 99	West Hill Dam	New England	Pool elevation restrictions due to seepage problems continue from last year.	Minor	Oct 99 - Sep 00

Table 3-5

North Atlantic Division

USGS and NWS Cooperative Program Summary
Fiscal Year 2000

Division & District Office	NWS Cooperative Gauging Program	NWS AFOS	NWS DOMSTAT	USGS Cooperative Gauging Program	Total
Divison HQ	0	0	0	0	0
Baltimore	0	0	0	910,800	910,800
Norfolk	3,662	0	0	205,105	208,767
New York	0	0	0	22,520	22,520
New England				312,598	312,598
Philadelphia	3,929	0	0	311,950	315,879
Total	7,591	0	0	1,762,973	1,770,564